

REMARKS

Claims 1-3 and 5-22 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al. (U.S. Patent 6,587,979) and Cowles (U.S. Patent 6,212,114).

Claim 1 recites "a plurality of random access memory (RAM) blocks ... a plurality of test modules, each being coupled to a corresponding one of the RAM blocks, ... and a dedicated test bus coupled to each of the test modules."

(Emphasis added.)

Kraus et al. do not teach or suggest "a dedicated test bus" as recited by Claim 1. The Examiner argues that Cowles remedies this deficiency of Kraus et al., by disclosing a "dedicated test bus structure approach".

Cowles teaches the 'Use of only one dedicated bus line to' enter 'into the desired test state'. (Cowles, Col. 6, lines 32-33.) 'Line 613d is the single bus line ... which enables defect testing to take place'. (Cowles, Col. 9, lines 31-34.) '[C]ommon bus line 613d is provided between sense circuitry 610 and address decoder circuitry 614' of the memory array. (Col. 9, lines 56-58.) In the test mode, the digit\_to\_cell\_plate signal on line 613d goes active. (Col. 10, lines 40-41.)

Thus, Cowles teaches a memory array that can enter a test state in response to a signal provided on a single dedicated bus line, wherein the single dedicated bus line is internal to the memory array (e.g., the dedicated bus line extends between the address decoder 614 and the sense amp circuitry 612 of the memory array 600). If the teaching of Cowles was applied to multiple memory arrays (e.g., multiple RAMs 12 of Kraus et al.), then each of these memory arrays would require its own dedicated bus line (between its address decoder and its sense amp circuit) in order to

initiate the test state. For example, implementing the teaching of Cowles in the multiple RAM blocks 12 of Kraus et al. would require a separate dedicated bus line within each of the RAM blocks 12 (i.e., between the address decoder and the sense amp circuit within the RAM block). Because each of the RAM blocks would have a separate dedicated bus line, there would not be a single dedicated test bus line coupled to each of the memory arrays (or test modules). Stated another way, although each test bus line may be 'dedicated' with respect to a single corresponding memory array, no test bus line is 'dedicated' with respect to all of the memory arrays. Thus, combining Cowles with Kraus et al. would not result in "a dedicated test bus coupled to each of the test modules" as recited by Claim 1. For this reason, Claim 1 is allowable over Kraus et al. in view of Cowles.

Claims 2-3, 5-10 and 20-22, which depend from Claim 1, are allowable over Kraus et al. in view of Cowles for at least the same reasons as Claim 1.

In addition, Cowles does not remedy the deficiencies of Kraus et al., which were specifically identified in Applicant's Response to the third Office Action, with respect to Claims 2, 4, 5, 6, 7 and 8. Moreover, the Examiner's rejection does not indicate how Cowles would remedy the specific deficiencies of Kraus et al. with respect to these claims. For these additional reasons, Claims 2, 4, 5, 6, 7 and 8 are allowable over Kraus et al. in view of Cowles.

Claim 11, which recites "accessing the RAM blocks through a dedicated test bus during a test mode", is allowable over Kraus et al. in view of Cowles for reasons similar to Claim 1. Claims 12-19, which depend from Claim

11, are allowable over Kraus et al. in view of Cowles for at least the same reasons as Claim 1.

In addition, Cowles does not remedy the deficiencies of Kraus et al., which were specifically identified in Applicant's Response to the third Office Action, with respect to Claims 14, 16, 17, 18 and 19. Moreover, the Examiner's rejection does not indicate how Cowles would remedy the specific deficiencies of Kraus et al. with respect to these claims. For these additional reasons, Claims 14, 16, 17, 18 and 19 are allowable over Kraus et al. in view of Cowles.

Claim 4 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al., Cowles and Nadeau-Dostie et al. (U.S. Patent 5,812,469).

Claim 4, which depends from Claim 1 is allowable over Kraus et al. in view of Cowles for at least the same reasons as Claim 1. Nadeau-Dostie et al., which appears to be cited to introduce dual-port memory testing, does not remedy the above-described deficiencies of Krause et al. and Cowles. Thus, Claim 4 is allowable over Krause et al. in view of Cowles and Nadeau-Dostie et al.

Claims 1-3 and 5-9 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al., Cowles and Jamal (U.S. Patent 5,568,437).

As described above, Claim 1 is allowable over Kraus et al. in view of Cowles. Because Jamal does not teach or suggest a dedicated test bus as recited by Claim 1 (see, Applicant's Response to the First Office Action), Jamal fails to remedy the above-described deficiencies of Krause et al. and Cowles. Thus, Claim 1 is allowable over Krause et al. in view of Cowles and Jamal. Claims 2-3 and 5-9, which depend from Claim 1, are allowable over Kraus et al.

in view of Cowles and Jamal for at least the same reasons as Claim 1.

Claims 10-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kraus et al., Cowles, Jamal and Grider et al. (U.S. Patent 5,515,540).

As described above, Claim 1 is allowable over Kraus et al. in view of Cowles and Jamal. Grider et al., is cited for teaching memory blocks with a capacity of 32 Kb or less, does not remedy the above-described deficiencies of Krause et al., Cowles and Jamal. For this reason, Claim 1 is allowable over Krause et al. in view of Cowles, Jamal and Grider et al. Claim 10, which depends from Claim 1, is allowable over Kraus et al. in view of Cowles, Jamal and Grider et al. for at least the same reasons as Claim 1.

As described above, Claim 11 is allowable over Kraus et al. in view of Cowles. Jamal and Grider et al. do not remedy the above-described deficiencies of Krause et al. and Cowles. Thus, Claim 11 is allowable over Krause et al. in view of Cowles, Jamal and Grider et al. Claims 12-19, which depend from Claim 11, are allowable over Kraus et al. in view of Cowles, Jamal and Grider et al. for at least the same reasons as Claim 11.

CONCLUSION

Claims 1-22 are pending in the present Application. Reconsideration and allowance of these claims is respectfully requested. If the Examiner has any questions or comments, he is invited to call the undersigned.

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